PRELIMINARY AND SHORT REPORTS

A THERAPEUTIC ASSAY OF TOPICALLY APPLIED 9α-FLUORHYDROCORTISONE ACETATE IN SELECTED DERMATOSES

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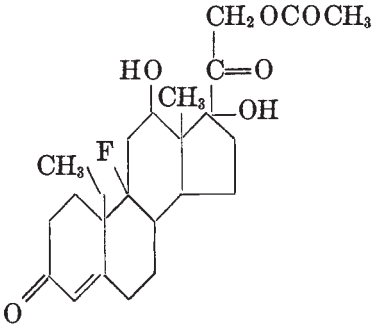
9α-fluorhydrocortisone acetate is a derivative of hydrocortisone, with the following structural formula (1):



Such derivatives of cortisone and hydrocortisone in which the 9α-hydrogen atom has been replaced by a halogen have been shown to possess many times the glucocorticoid activity of cortisone and hydrocortisone (1). Goldfien, et al. (2) in a study of the parenteral use of these compounds in Addison's disease, have reported that fluorhydrocortisone acetate has many times the metabolic and therapeutic activity of hydrocortisone, as well as a more prolonged action. Both hydrocortisone acetate and hydrocortisone free alcohol have been reported of value in the topical treatment of various dermatoses, and they have been shown to be of approximately equal efficacy when used in equal concentrations (3–8). Because of the reported greater metabolic and therapeutic activities of systemically administered 9α-fluorhydrocortisone acetate, it was thought worthwhile to compare the clinical effect of topically applied fluorhydrocortisone acetate with one of the other hydrocortisone compounds evaluated in our previous studies (6). In this way, it could be ascertained if the fluor-compound was more effective as a topical medication.

The present study compares the effectiveness of topical preparations containing 9α-fluorhydrocortisone acetate with those containing hydrocortisone

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TABLE 1

No. of Cases	Diagnosis	Comparison of Fluorhydrocortisone Acetate Topical Preparations with Hydrocortisone Free Alcohol (H.F.A.) Topical Preparations					
		Much better than H.F.A.	Slightly better than H.F.A.	Equally effective	Equally ineffective	Not as good as H.F.A.	No Simultaneous Control (only fluorhydrocortisone acetate used)
28	Atopic dermatitis	5	10	11		2	
7	Allergic contact dermatitis	2	2	1		1	1—Improvement
3	Nummular eczema	1	1		1		
2	Lichen simplex chronicus			2			
3	Lichen planus		1		1		1—Improvement (?)
2	Pruritus vulvae						2—No improvement
2	Otitis externa					1	1—Improvement
2	Intertrigo		1				1—No improvement
3	Psoriasiform dermatitis		2	1			
1	Perivulvar psoriasis		1				
2	Psoriasis						2—Improvement (?)
3	Erythroderma		2	1			
1	Seborrheic dermatitis						1—Improvement
1	Dermatitis medicamentosa					1	
1	Alopecia areata						1—No improvement
1	Pemphigus vulgaris						1—No improvement
62	Totals	8	20	16	2	5	11

free alcohol. Two bases were used, one a plasticized petrolatum base* and the other a lotion†. Three concentrations (0.5%, 0.2%, and 0.1%) of the fluorhydrocortisone acetate and the hydrocortisone free alcohol were incorporated in each base. A total of 62 patients with dermatoses which previously have been reported as amenable to topical hydrocortisone acetate and hydrocortisone free alcohol therapy, such as atopic dermatitis, allergic eczematous contact dermatitis, nummular eczema, lichen simplex chronicus, etc., were treated. Whenever feasible the preparations were assayed by the simultaneous paired comparison method, i.e. the simultaneous application of the fluorhydrocortisone acetate preparation to one of two symmetrically situated areas and of the hydrocortisone free alcohol preparation to the other. In each instance the comparison was made with the same concentrations of each compound in the same base, e.g. the

* Plastibase (Squibb Oleaginous Ointment Base).

† An oil in water emulsion (Squibb).

0.5% ointment of fluorhydrocortisone acetate was compared with the 0.5% ointment of hydrocortisone free alcohol; the 0.1% lotion of fluorhydrocortisone acetate compared with the 0.1% lotion of hydrocortisone free alcohol; etc. Patients were instructed to rub the preparations in well two to three times daily. We were able to observe our patients at approximately weekly intervals for evaluation of both subjective and objective changes. Treatment periods varied from 2 days to 5 weeks, averaging 2 to 3 weeks.

The results of this study are given in table 1. From this table it can be seen that it was possible to carry out the simultaneous paired comparison method of evaluation in 51 of the 62 cases. In 28 out of these 51 cases the side of the body treated with fluorhydrocortisone acetate appeared to be better than the side treated with hydrocortisone free alcohol and in 8 of these 28 cases the difference in favor of the fluorhydrocortisone was very distinct. In 16 cases the two compounds were equally effective, in 2 cases they were both ineffective, and in 5 cases the fluorhydrocortisone acetate was less effective than the hydrocortisone free alcohol. In 11 cases it was not feasible to carry out simultaneous paired comparison because of either the nature of the eruption or the area involved. In these cases the fluorhydrocortisone acetate was helpful in 3 cases, of questionable benefit in 3 cases, and of no benefit in 5 cases.

In 6 patients it was possible to compare the effect of the fluorhydrocortisone acetate in the ointment base with the fluorhydrocortisone acetate in the lotion base, using equal concentrations of each. Objectively the ointment preparations were slightly more effective in 2 cases, the lotion was more effective in 1 case, and they were equally effective in 3 cases. Subjectively 3 patients stated a preference for the lotion while the other 3 had no preference. The reasons for the preference of the lotion as given by the patients were that it was easier to apply, that it was "less messy", and that it had a nicer feel.

While we did not attempt a systematic study of the comparative effectiveness of the various concentrations of the fluorhydrocortisone preparation, it was our impression that the 0.2% concentration was, in general, somewhat more effective than the 0.1%. In that the 0.5% ointment was studied prior to the time that the 0.2% and 0.1% ointments were made available to us, it is impossible to state to what degree, if any, the stronger 0.5% ointment was more effective. The reasons why the hydrocortisone free alcohol in the relatively low concentrations (down to 0.1%) in the vehicles used appeared to be so effective in many of the cases must be the object of further investigations.

There was no instance of allergic sensitization or of local or systemic damage resulting from the fluorhydrocortisone acetate or the hydrocortisone free alcohol preparations during the period of observation. In 5 cases the patients complained of a burning sensation on application of both the fluorhydrocortisone and the hydrocortisone ointments. In only 2 cases was this severe enough to necessitate discontinuing their use.

The results here reported suggest that 9α-fluorhydrocortisone acetate is slightly more effective than hydrocortisone free alcohol in the topical therapy of the majority of the selected dermatoses treated.

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